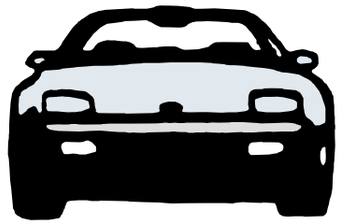
Protect Your Car & the Environment



WASHINGTON STATE DEPARTMENT OF ECOLOGY

Ecology publication #94-110 (rev 5/04)

Preventative Maintenance Record

Make: _____ Model: _____ Year: ____

Tire Pressure: Front: _____ Rear: _____ Air Filter #: _____

Oil Filter #: _____ Oil Capacity (Quarts): _____ Oil Type: _____

Date	Mileage	Motor Oil		Checked Tire Pressure?	Service Required (Tune-up, etc.)
		Changed?	Recycled?		

KEEP THIS BOOKLET IN YOUR CAR FOR HANDY REFERENCE

Annual cost of driving alone to school, work, the game, *wherever*

_____ Round-trip daily mileage

× 21 or 22 work days per month

= _____ miles per month

× 0.57*

\+ _____ parking

= _____ monthly cost

monthly cost × 12 months

= _____ annual cost

** This figure includes gas, oil, car maintenance, insurance and assumes 15,000 miles are driven each year.*

Try these exercises

- Use the above table to find your annual cost of driving.
- Bicycle, carpool, rollerblade, walk or take the bus to school or work at least one day each week.

Figure out your monthly and annual savings if you use an alternative to driving, such as your bicycle or feet. For example, if you drive and spend $2,000 a year to maintain your car, pay for insurance, buy gas, etc.,

Here's what you could do with that money by **not** driving:

- fly around the world twice
- buy a top-of-the-line computer
- buy 125 CDs
- pay for over 3 years of cable TV
- watch 250 movies in the theater
- pay for part of college
- buy a complete stereo system
- buy clothing for several years
- buy 125 loaded pizzas
- buy a mountain bike & ski equipment

More information

Department of Ecology operates an information hotline staffed by people who answer questions about waste reduction and recycling. For more information, call 800-RECYCLE.

To order additional copies of this publication, contact:

Washington State Department of Ecology
Olympia, WA 98504-7600
or call 800-RECYCLE

♻ Printed on 50% recycled paper with a minimum of 10% post-consumer waste using soy-based ink.

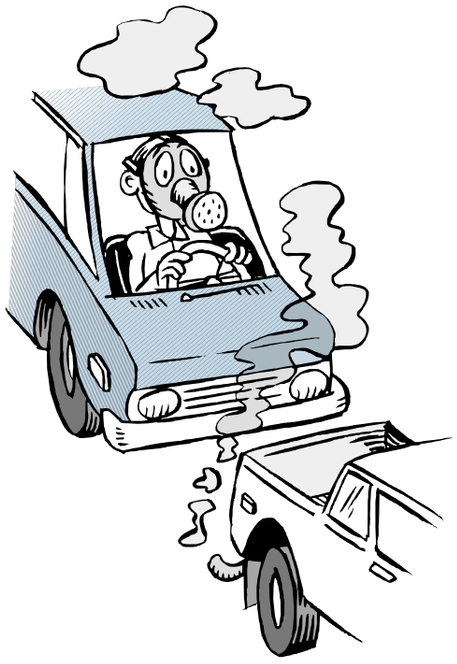
If you need this information in another format, please contact please contact the Air Quality Program at (360) 407-6800. If you are a person with a speech or hearing impairment, call 711, or 1-800-833-6388 for TTY.

Don’t let the car engine idle!

Here’s a powerful tool just about any driver can use to save money and help protect the air we breathe: *the ignition switch.*

Idling your car for more than 30 seconds wastes money and damages the environment. Turning it off is a simple act that can make a big difference.

We don’t usually think about how idling our cars causes pollution. We let our engines run at drive-up windows and when we’re sitting at the mall, waiting for trains or ferries, or listening to the radio. We even idle at schools, where children have to breathe the exhaust.



Children breathe 50 percent more air per pound of body weight than adults, and vehicle exhaust increases many children’s asthma symptoms.

Contrary to popular belief, idling isn’t an effective way to warm up most car engines. Today’s automobile manufacturers recommend driving off right away and urge that drivers wait no more than 30 seconds to begin driving, even on the coldest days.

Some people worry that restarting the engine might harm the car, but frequent restarting does little damage. Surprisingly, excessive idling can actually damage a car’s engine components, including cylinders, spark plugs and the exhaust system. And idling can be expensive, wasting up to a gallon of gas an hour.

Remember, vehicle exhaust is the leading source of air pollution in Washington!

It’s simple. When the car’s not moving, the engine shouldn’t be running.

Idling gets you nowhere.

Introduction

So you have a new license or a new car and are about to hit the road! Before you do, check out this booklet. By following the tips inside, you’ll get the most performance out of your car and the maximum benefit from your cash flow — **and** you’ll be helping the environment!

We want your driving experience to be safe and fun. When you’re done reading this booklet, keep it in your car as a handy reference. You’ll be glad you did.

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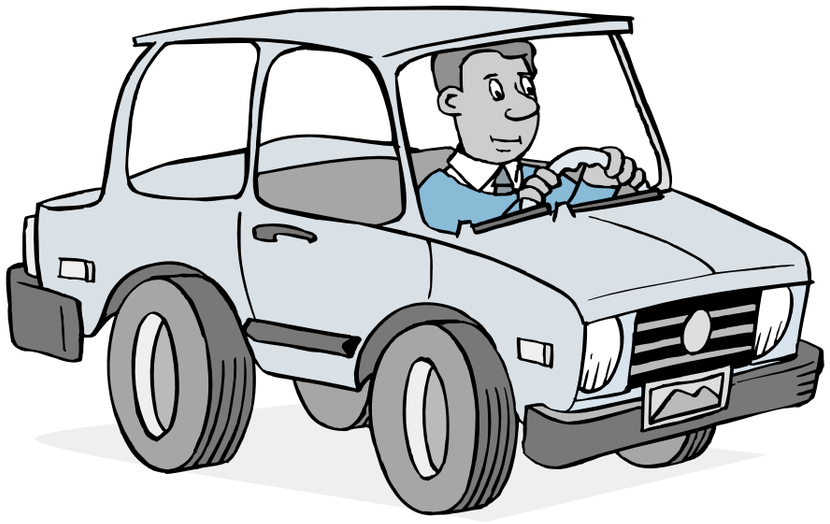


Get the most out of your tank

Your car's gas tank is like your body. What you put in it and how you treat it affects its performance. There are lots of things you can do to get the most out of your car. Follow the tips below and you'll help increase your car's life as well as the life of each gallon of gas.

- Keep your engine tuned.
- Use the proper fuel (unleaded or diesel). If your car uses unleaded gas, check your owner's manual to determine what octane level is best.
- Keep your wheels aligned and tires properly inflated. You can improve your gas mileage about 3 percent, or about 5 cents a gallon, when your tires are properly inflated.
- Remove unnecessary weight from your car. Using your car as a traveling warehouse burns up more gas.
- Drive within the posted speed limits. It actually saves gas!
- Cut down on your air conditioning (A/C). Your A/C is one of the biggest drains on your engine.
- Avoid unnecessary idling. Turn off your engine if you think you'll be waiting more than 30 seconds, except while waiting in traffic.
- Accelerate and brake gently. Avoid jack-rabbit starts. You'll save wear and tear on your car and tires.
- Combine several errands into one car trip. It saves time, money and your car!
- Use cruise control if your car has it. It saves gas on long-distance trips.
- Aggressive driving (speeding and rapid acceleration and braking) can decrease fuel economy by as much as 33 percent at highway speeds and 5 percent around town. This can cost you as much as 49 cents per gallon.

What's the best way to save gas? Drive less.

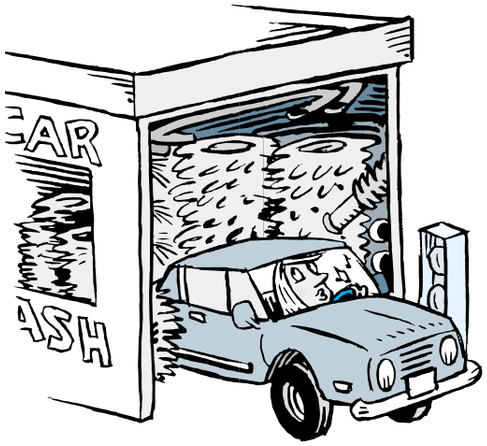
Cleaning your driving machine

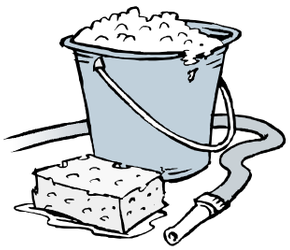
Most people agree that a clean car looks better than a dirty one. But what about the environment? We have some cheap ways to help you get a mean, clean driving machine!

Car washing

Washing your car on a regular basis uses a lot of water. It also can pollute surface water because wash water contains dirt, road grime, oils and soaps.

- If you wash your own car, do it over a grassy or gravelly area. When you wash your car on cement (like the driveway or street), the dirty water goes directly into a storm drain, which goes into the nearest body of fresh water or to underground water.





- Put a nozzle on your hose and you will save water.
- If you take your car to a commercial car wash, the dirty wash water may either be recycled on-site or sent directly into the sewer system, where it gets cleaned at a wastewater treatment plant.

Fabric & carpet-stain cleaner

Pour club soda on the spot. Let it sit, then sponge dry.

Chrome cleaner

Use ¼-cup baking soda and enough water to make a paste. Scoop the paste onto a sponge and rub onto the chrome. Once clean, rinse with warm water and then polish.

Window cleaner

Wash windows with equal parts of white vinegar and warm water. Dry with a soft cloth.

Where the rubber meets the road

The single greatest cause of tire damage is improper tire inflation. Your tires lose pressure over time, resulting in unnecessary stress, early wear and poor gas mileage.

What can you do? Get to know your tires. Look at them regularly when getting in and out of your car. Look for bald spots. Listen to them when you turn a corner at normal speeds. If you hear a squealing sound, you may need more air in your tires.

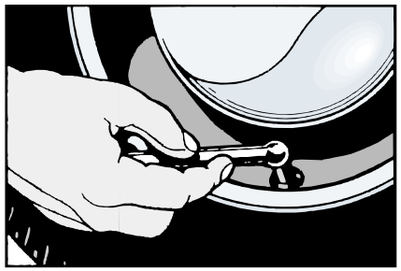
Checking your air pressure

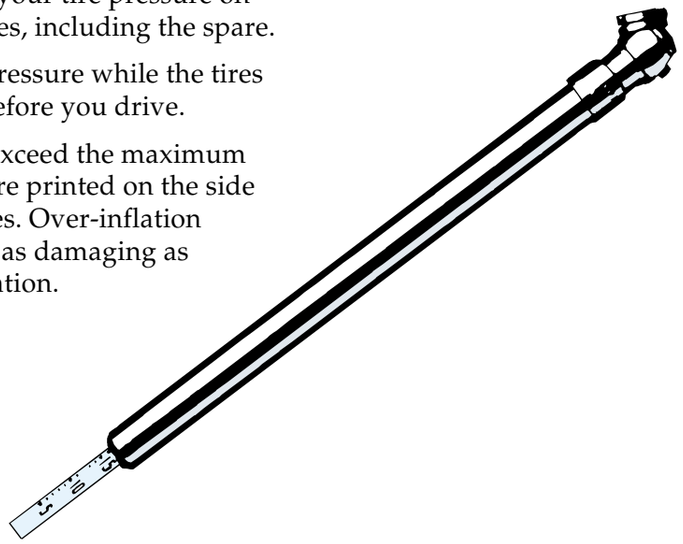
- Check your owner's manual for the proper tire pressure.
- Buy a good tire-pressure gauge and check your tire pressure on all your tires, including the spare.
- Check pressure while the tires are cold, before you drive.
- Do not exceed the maximum tire pressure printed on the side of your tires. Over-inflation can be just as damaging as under-inflation.

Tire-pressure gauge

If your tires have too little air (under-inflation) you can get bad tire wear, poor handling and reduced fuel economy.

If your tires have too much air (over-inflation) you can get a rough ride, poor handling and needless tire damage.





Try these exercises

- Use the fuel mileage chart below to find your miles per gallon (MPG).
- Keep track of your MPG throughout the year. Does it change between seasons? Between highway and city driving?

How to use the fuel mileage chart

1 Fill up your gas tank. How many gallons of gas did you put in? Find that number on the left column of the chart. Put your finger there.

2 How many miles did you drive between fill-ups? Find the closest number on the same line your finger is on.

3 Now, trace your finger to the top of that column to find out your MPG. It's that simple.

Example: Say you put 10 gallons of gas in your tank – find the "10" on the left column. And say you drove 250 miles between fill-ups – trace your finger across that row until you get to "250." Now, trace your finger to the top of the column. Your answer is 25 MPG.

Fuel Mileage Chart

Gallons Purchased	Miles Per Gallon																											
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
5	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180
6	60	66	72	78	84	90	96	102	108	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216
7	70	77	84	91	98	105	112	119	126	133	140	147	154	161	168	175	182	189	196	203	210	217	224	231	238	245	252
8	80	88	96	104	112	120	128	136	144	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	280	288
9	90	99	108	117	126	135	144	153	162	171	180	189	198	207	216	225	234	243	252	261	270	279	288	297	306	315	324
10	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360
11	110	121	132	143	154	165	176	187	198	209	220	231	242	253	264	275	286	297	308	319	330	341	352	363	374	385	396
12	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360	372	384	396	408	420	432
13	130	143	156	169	182	195	208	221	234	247	260	273	286	299	312	325	338	351	364	377	390	403	416	429	442	455	468
14	140	154	168	182	196	210	224	238	252	266	280	294	308	322	336	350	364	378	392	406	420	434	448	462	476	490	504
15	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360	375	390	405	420	435	450	465	480	495	510	525	540
16	160	176	192	208	224	240	256	272	288	304	320	336	352	368	384	400	416	432	448	464	480	496	512	528	544	560	576
17	170	187	204	221	238	255	272	289	306	323	340	357	374	391	408	425	442	459	476	493	510	527	544	561	578	595	612
18	180	198	216	234	252	270	288	306	324	342	360	378	396	414	432	450	468	486	504	522	540	558	576	594	612	630	648
19	190	209	228	247	266	285	304	323	342	361	380	399	418	437	456	475	494	513	532	551	570	589	608	627	646	665	684
20	200	220	240	260	280	300	320	340	360	380	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	720
21	210	231	252	273	294	315	336	357	378	399	420	441	462	483	504	525	546	567	588	609	630	651	672	693	714	735	756
22	220	242	264	286	308	330	352	374	396	418	440	462	484	506	528	550	572	594	616	638	660	682	704	726	748	770	792

Be oil smart

If you have your oil changed by a quick-lube shop or a service station, make sure they recycle your oil. Ask them to put re-refined motor oil in your car rather than virgin oil. Re-refined oil has been used at least once and cleaned of impurities.

When buying re-refined motor oil, look for the American Petroleum Institute "donut" on the container. API is responsible for making sure that all oils displaying the API "donut" meet specific high-quality standards. Using re-refined oil is like using recycled oil, and it performs just as well as virgin oil!

How often should my oil be changed?

Some people suggest having your oil changed every 3 months or every 3,000 miles, whichever comes first. It is best, however, to check your car's owner manual for the recommended time or mileage between oil changes.

Oil never wears out. It just gets dirty. So, it can be recycled again and again and again and...

Brake fluid

Brake fluid protects and lubricates your car's braking system. Without it, your car won't stop properly. If you change your own brake fluid, collect it in a separate container. Do not mix it with used motor oil or any other fluid. Brake fluid can be recycled in some parts of Washington. Call 8OO-CLEANUP or your local household hazardous waste office for more information.

Gasoline

Gasoline fuels your car and gives it power. When you fill your tank with gas, don't "top it off." Remove the nozzle when the gas pump clicks off and don't add any more gas. "Topping off" increases the chance of spilling gas on the ground and on yourself. Gasoline is flammable and the fumes are toxic. So, store it in an approved container away from flames and direct sunlight.

Motor oil

Motor oil lubricates and cools your engine. It protects your engine parts from premature wear and excessive heat. Check with your car's manufacturer for the oil for your car. Be sure that either you or your mechanic recycles your used motor oil.

Windshield cleaner

Windshield cleaner helps clean your windshield of bugs, tree sap and anything else that sticks to it. When using concentrated washer fluid, read the manufacturer's instructions for adding water.

Don't use antifreeze in your windshield washer. It can damage your car's paint.

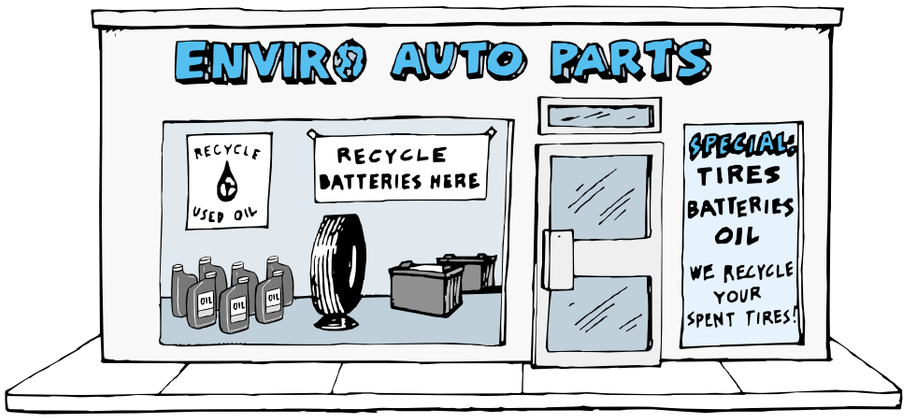
Fluids, fluids and more fluids

Your car uses lots of fluids, such as antifreeze, brake fluid, gasoline, motor oil and windshield cleaner. All of these need to be checked regularly. If you fill your car with these fluids, make sure you know which one goes where. Check your owner's manual. It has all the information you need to know about your car. Refer to it!!

Used motor oil and antifreeze can be recycled. Call 8OO-CLEANUP for the nearest recycling facility.

Antifreeze (engine coolant)

Antifreeze and engine coolant are the same thing. It helps keep your car's engine from getting too cold or too hot. It also protects your radiator and other metal engine parts from rusting. Read the directions on the container for diluting with water. Children and pets are attracted to antifreeze because of its sweet taste, and they can be poisoned by drinking small amounts. So, store unused antifreeze in a safe place and be sure to recycle it.



If you change your own oil, do the following:

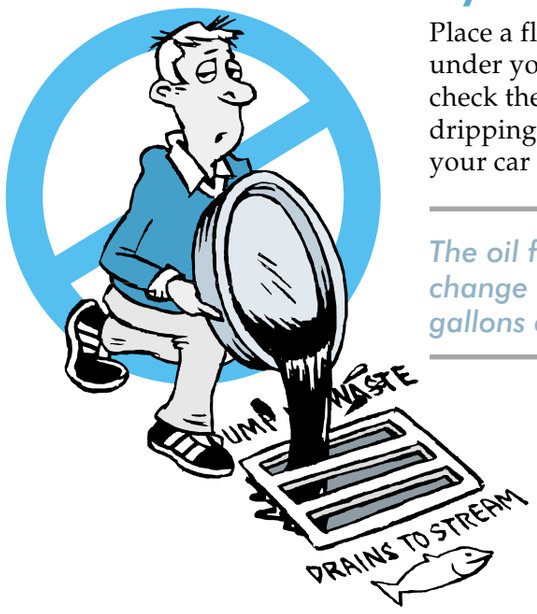
- Call 8OO-CLEANUP, visit *www.earth911.org* or contact your local solid-waste division for the location of the nearest used-oil collection center.
- Collect your waste oil in a clean container (such as a plastic milk jug).
- Never mix used oil with antifreeze, gasoline, paint thinner, solvents or any other substance. If you do, the oil cannot be recycled. Keep each substance separate.
- Buy and use re-refined motor oil.
- Drain your oil filter in a clean container for 24 hours. You may mix the drained oil with your other motor oil. Wrap the oil filter in a plastic bag and throw it the trash.
- Never pour your used oil into a storm drain, on the lawn or down the drain.

Storm drains are normally located in streets and parking lots and are marked by a grate that collects water. These drains are meant to carry only uncontaminated water to the nearest body of water. Putting oil, antifreeze or other pollutants into a storm drain is the same as dumping them directly into a lake, river or aquifer.

Try this exercise

Place a flattened cardboard box under your car. After one week, check the cardboard for any oil drippings. If you find some, take your car to a mechanic.

The oil from a single oil change can ruin one million gallons of water.



Breathing clean air

Driving cars causes air pollution. Every time you start your car, nasty stuff such as carbon monoxide, particulates and hydrocarbons is released into the air through your car's exhaust. To help clean up our air, Washington state requires vehicles in some urban areas to get an emission test.

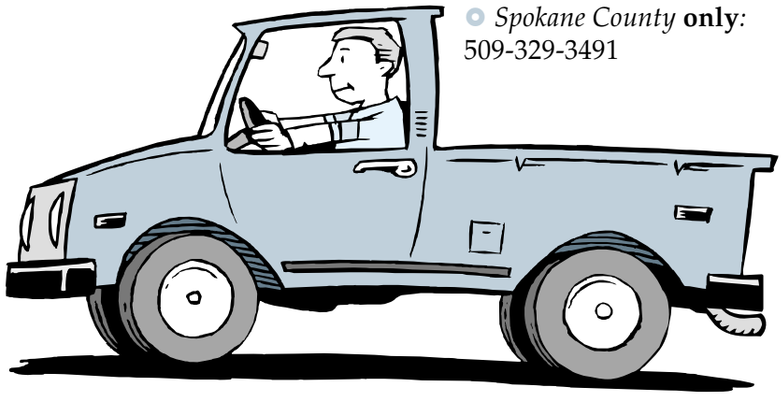
Q: *What is an emission test?*
A: Emission tests help reduce carbon monoxide and ozone pollution by identifying vehicles that pollute too much. The federal Clean Air Act requires vehicle emission tests in and around areas where air quality dips below clean-air standards.

Q: *Does my vehicle need to be checked?*
A: If your vehicle is registered in Clark, King, Pierce, Snohomish or Spokane county, you may need to have it tested for emissions every other year prior to renewing your vehicle license. All gasoline and diesel-powered vehicles registered in parts of these five counties get tested if they are between five and 25 years old.

If your vehicle is registered in a county not listed above, you do not need an emission test. But it is still important to take care of your car to protect air quality in your county.

If your vehicle needs an emission test, you will be sent a vehicle-license renewal notice that says "Emission Inspection Required." For the location of the vehicle-emission inspection station nearest you:

- *Clark & Pierce Counties* **only**: 800-453-4951
- *King & Snohomish Counties* **only**: 800-272-3780
- *Spokane County* **only**: 509-329-3491



Get a whiff of this

Motor vehicles are the #1 producers of air pollution in Washington – more than industrial plants or incinerators.

Engine exhaust contains carbon monoxide (CO), which is a by-product from the burning of fuel in car engines. Though the gas has no color or odor, it is dangerous. When inhaled, CO causes headaches, dizziness and drowsiness in healthy people. It can cause chest pains and death for people with heart or other circulatory problems.

You may have carbon monoxide coming into your car if:

- your car is rusty underneath
- your vehicle was in an accident
- your exhaust system sounds strange

If you think exhaust is coming into your car, drive with all the windows down and have it fixed immediately.

The average person breathes about 25,000 times a day. Wouldn't you rather breathe clean air?

TIP: Warm up your engine for no more than 30 seconds. Excessive idling pollutes the air and wastes gas.

Your air conditioner and the environment: what's the connection?

The ozone layer protects the earth from the sun's harmful ultraviolet (UV) rays. You've heard about ozone depletion, but did you know the refrigerants used in your car's air-conditioning system may be part of the cause? When released into the air, the gas from your car's air-conditioning (AC) system damages the ozone layer.

Do you own a motor vehicle with air conditioning manufactured before 1995? If so, your air-conditioning system may contain ozone-depleting chlorofluorocarbons (CFCs). Chemical manufacturers are no longer allowed to produce CFCs, so older cars need to be retrofitted to use newer gases.

CFCs break down and destroy ozone molecules in the stratosphere. As the ozone layer is destroyed, more and more UV rays reach the earth. Too much UV radiation causes human health problems such as skin cancer, cataracts and weakened immune systems.

Keep AC gas out of the air by preventing leaks with an annual AC check.